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ABSTRACT

The National Assessment of Educational Progress assessment of reading was conducted from October 1970 through August 1971 at four age levels--9, 13, 17, and 26-35. The objectives assessed were formulated and reviewed by a cross section of scholars, educators, students, and lay citizens. The five major objectives represent the individual's ability to comprehend, analyze, use, reason logically from, and make judgments concerning what he has read. Once the reading objectives were formulated, they became the framework within which the reading exercises were developed. The majority of the exercises were in a multiple-choice format; some exercises required the correspondent to supply his own response. In summarizing the data, a group's overall performance relative to the national level on sets of exercises is described. Tables summarizing the data by age, group, sex, objective, and exercise set conclude the report. (TO)

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READING: SUMMARY DATA

ED 094359

NATIONAL ASSESSMENT OF EDUCATIONAL PROGRESS
A Project of the Education Commission of the States

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Assessment Reports

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4	Results by sex, region and size of community	April 1971
7	Results by color, parental education, size and type of community; balanced results	May 1973

Citizenship, 1969-70

2	National Results	November 1970
6	Results by sex, region and size of community	July 1971
9	Results by color, parental education, size and type of community	May 1972

Writing, 1969-70

3	National Results	November 1970
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FOREWORD

The National Assessment of Educational Progress is an information-gathering project which surveys the educational attainments of 9-year-olds, 13-year-olds, 17-year-olds and adults (ages 26-35) in 10 subject areas: Art, Career and Occupational Development, Citizenship, Literature, Mathematics, Music, Reading, Science, Social Studies and Writing. Two areas are assessed every year, and all areas are periodically reassessed in order to measure educational progress. Each assessment is the product of several years' work by a great many educators, scholars and lay persons from all over the country. Initially, these people design objectives for each area, proposing specific goals which they feel Americans should be achieving in the course of their education. These goals are reviewed by more people and then passed along to developers of tests, whose task it is to create measurement tools appropriate to the objectives.

When the exercises prepared by the test developers have passed extensive reviews by subject matter specialists and measurement experts, they are administered to a probability sample of 80-90,000 individuals. The people who comprise the National Assessment sample are chosen in such a way that the results of their assessment can be generalized to an entire national population. That is, on the basis of the performance of about 2,500 9-year-olds on a given exercise, we can generalize about the probable performance of all 9-year-olds in the nation.

After assessment data have been collected, scored and analyzed, National Assessment publishes reports such as this one to present the results as accurately as possible. Not all exercise results have been released for publication. Because National Assessment will administer some of the same Reading exercises again in five years to determine whether the performance level of Americans has improved or declined, it is essential that they be kept secret in order to preserve the integrity of the study. If the unreleased exercises can be discussed without revealing their content, they are examined. However, the discussion is much less detailed than it is for the released exercises.

The National Assessment of Educational Progress also publishes a *General Information Yearbook* which describes all major aspects of the assessment's operation. The reader who desires more detailed information about how National Assessment defines its groups, prepares and scores its exercises, designs its sample and analyzes and reports its results should consult *Report 02-GIY, General Information Yearbook: Reading & Literature.*

CHAPTER 1

THE READING ASSESSMENT

The assessment of Reading was conducted from October 1970 through August 1971 at four age levels--9, 13, 17 and 26-35. About three fourths of the 9-year-olds were then enrolled in the fourth grade, with most of the remainder in the third grade. About three fourths of the 13-year-olds were enrolled in the eighth grade with most of the remainder in the seventh grade.

The 17-year-olds who participated in the assessment fall into two classifications: (1) the "in-school" 17-year-olds and (2) the "out-of-school" 17-year-olds who were not enrolled in public or private schools during March 1970 because they either dropped out or completed high school early. The latter were included to provide a more balanced representation of all 17-year-olds. About three fourths of the "in-school" 17-year-olds were enrolled in the eleventh grade; of the remainder, about half were enrolled in the tenth grade and about half in the twelfth. Some of the "out-of-school" respondents were 18-year-olds who were included to obtain a larger representation, assuming that since they too were out of school, one year's difference in age would make little difference in the way they responded.

The young adults (aged 26-35) who participated in the assessment were born between April 1, 1935, and March 31, 1945. They and most of the out-of-school 17-year-olds were tested in their homes rather than in regular school situations.

A total of 98,016 people, both in and outside of schools, responded to a wide variety of Reading exercises. There were 29,820 9-year-olds, 37,588 13-year-olds, 28,673 17-year-olds and 1,935 young adults. National Assessment's probability sampling procedures insure that those 98,016 people are statistically representative of the total population of the United States at each of the four age levels.

The Reading exercises were administered and scored by trained professionals. The results were then examined according to various group characteristics.

1. Sex: Results for males and females are presented.

2. Color: Currently, National Assessment presents results for Blacks and Whites.

3. Parental education: The four parental education categories are defined by the highest level of education attained by *either* of a person's parents. The no high school category is comprised of all people who indicated that neither parent went to high school. The some high school category consists of all those who indicated that the parent with the most education attended high school but did not graduate. In the graduated from high school category are all those who indicated that at least one parent graduated from high school, and in the post high school group are all who indicated that at least one parent received some post high school education. (This may mean college, but it also includes adult education courses of any kind, vocational training, etc.)

4. Region of the country: National Assessment's regional divisions are the Southeast, West, Central and Northeast, the same regional divisions used by the Office of Business Economics, Department of Commerce.

5. Size and type of community (STOC): These categories apply only to respondents enrolled in school at the time of the assessment. The seven groups were defined as follows:

   a. Extreme inner city. People in this category attend schools in cities with populations greater than 150,000; the schools serve areas in which a high proportion of the residents are on welfare or are not regularly employed.

b. Extreme rural. People in this category attend schools in a community having a population less than 3,500. Most residents in the area the school serves are farmers or farm workers.

c. Extreme affluent suburb. Individuals in this group attend schools within the city limits or residential area served by a city with a population greater than 150,000; the area served by the school consists primarily of professional or managerial personnel.

d. Rest of big city. These are students attending schools in a big city (population greater than 200,000) who are not included in either the extreme inner city or extreme affluent suburb groups.

e. Medium size city. Individuals in this category attend schools in cities with populations between 25,000 and 200,000.

f. Small city. People in this group attend schools in a community of less than 25,000 inhabitants.

g. Suburban fringe. People in this group attend schools in the metropolitan area served by a city with more than 200,000 inhabitants; the school and the area it serves are outside of the city limits.

The results for 9, 13 and 17-year-olds who are *in school* are presented in terms of those STOC categories. However, we do not have the information necessary to present the results for adults and out-of-school 17-year-olds in the same way. Consequently, the following less specific breakdown of results appears for all 17-year-olds (in and out-of-school) and young adults:

1. Big city. In this group are all adults and 17-year-olds who live in or attend schools in cities with more than 200,000 inhabitants.

2. Urban fringe. This category consists of adults and 17-year-olds who live in or attend schools in the metropolitan area served by a big city, but outside of the city limits.

3. Medium size city. This category is comprised of adults and out-of-school 17-year-olds who live in or attend schools in communities with populations between 25,000 and 200,000.

4. Small places. Adults and 17-year-olds who live in or attend school in communities with populations under

25,000 fall into this group.[1]

The Reading Objectives

The Reading objectives were formulated and reviewed by a cross section of scholars, educators, students and lay citizens.

The first five Reading objectives represent the individual's ability to comprehend, analyze, use, reason logically from and make judgments concerning what he has read. These objectives form a hierarchy of reading behaviors; that is, one must be able to comprehend a passage before he can analyze it and analyze a passage before he can use it, reason from it or make judgments concerning it. This hierarchical arrangement of behaviors represents a logical progression of what a student should be able to do as a result of his reading experiences and instruction. The sixth Reading objective is concerned with attitudes toward and interests in reading. The six Reading objectives and major subobjectives are:

I. Comprehend what is read.
   - A. Read individual words.
   - B. Read phrases, clauses and sentences.
   - C. Read paragraphs, passages and longer works.

This is the most elementary or most concrete objective, requiring only the recognition of individual words in or out of context and the ability to extract facts from passages.

II. Analyze what is read.
   - A. Be able to trace sequences.
   - B. Perceive the structure and organization of the work.
   - C. See the techniques by which the author has created his effects.

This objective is a degree more abstract than the first objective. It requires the ability to detect relationships among facts, including organization of facts and recognizing sequences of facts.

III. Use what is read.
   - A. Remember significant parts of what is read.
   - B. Follow written directions.
   - C. Obtain information efficiently.

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[1]For a detailed description of groups, and of how the assessment was administered, scored and analyzed, please refer to *Report 02-GIY, General Information Yearbook: Reading & Literature* (Washington, DC: Government Printing Office, 1972) available from the Superintendent of Documents.

This skills objective requires the individual to recall facts from a passage he has read without referring to the passage, to perform various tasks on the basis of what he has read and to demonstrate his ability to obtain information from a wide variety of non-textual materials.

IV. Reason logically from what is read.
- A. Draw appropriate inferences from the material that is read and "read between the lines" where necessary.
- B. Arrive at a general principle after examining a series of details.
- C. Reason from a general principle to specific instances.

This objective requires a significantly greater use of abstracting ability than any previous objective. On the basis of reading about a sequence of events, the individual must determine what event would logically follow; or he must determine the main point or topic of a passage from the facts that are presented; or, if given a general concept, he must recognize how specific facts relate to the concept.

V. Make judgments concerning what is read.
- A. Relate what is read to things other than the specific material being read.
- B. Find and use appropriate criteria in making judgments about what is read.
- C. Make judgments about a work on the basis of what is found in the work itself.

In some sense, this is a practical or an applied version of Objective IV. Like Objective IV, it requires a high degree of abstracting ability, but it also requires the use of facts and/or concepts external to the passage. Objective V may require relating facts and/or concepts in a passage to some aspect of the world at large, or it may require relating some fact and/or concept acquired in the individual's past experience to the passage.

VI. Have attitudes about and an interest in reading.

This objective was not assessed in 1970-71.[2]

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[2]For a complete statement of the Reading objectives and a detailed discussion of their development, refer to the National Assessment publication, *Reading Objectives*, 1970-71 National Assessment of Reading (Denver, CO: National Assessment of Educational Progress, 1970).

The Reading Exercises

Once the Reading objectives were formulated, they became the framework within which the Reading exercises[3] were developed. Each exercise, therefore, purports to measure readers' skills related to one of the above objectives.

The majority of the Reading exercises were in a multiple-choice format that included an "I don't know" response. The respondent merely filled in an oval beside the response he believed to be correct. Some exercises were open ended, requiring the respondent to supply his own response.

The Reading Themes

After the Reading exercises were developed, another framework for classification was constructed. Themes were developed by members of the National Assessment staff and reading specialists to cluster the Reading exercises into reporting categories meaningful to lay persons, scholars and educators.

A theme defines a set of existing and potential exercises that relate to each other in content or in some central idea that is meaningful to the subject area of concern. The Reading themes represent both a variety of reading materials and a variety of behaviors these materials require.

The themes are numbered--the lower numbers designating the more basic reading skills and the higher numbers designating higher order skills. Successful performance on exercises in the higher numbered themes requires some of the abilities measured in the lower numbered themes in addition to the higher ordered skill. This increasing complexity is apparent in the following description of the Reading themes.

Theme 1: Understanding Words and Word Relationships

Since most reading materials contain words, at a minimum the reader must be able to understand the meanings of the words and how

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[3]The term *exercise* has been used intentionally to distinguish the assessment from a *test*. Most standardized tests are normative, reporting results for groups of items. Individuals are then compared to the test norms. National Assessment, however, describes the performance of broad population groups on specific exercises within well-defined educational objectives.

the words relate to form a meaningful whole. Exercises in this theme are of three types. One type requires the individual to give the meaning of a word occurring in isolation, another type requires the individual to derive the meaning of a word from its contextual use and the third type requires the individual to recognize when sets of words relate to form a meaningful whole.

A person must be able to do more than merely recognize words and word relationships; he must also be able to glean important facts from many types of materials. Themes 2-5 are all concerned with a person's ability to identify and extract significant factual information, but they differ in the method used to present the factual information.

Theme 2: Graphic Materials

Subtheme A: Interpret drawings and pictures.
Subtheme B: Read signs and labels.
Subtheme C: Read charts, maps and graphs.
Subtheme D: Read forms (such as applications, report cards, etc.).

Theme 2 is characterized by materials using a variety of formats other than line-by-line narrative to convey their messages. Graphic materials can be used alone, or in lieu of or in conjunction with line-by-line narrative to clarify or augment its meaning.

Theme 3: Written Directions

Subtheme A: Understand written directions.
Subtheme B: Carry out written directions.

Directions are information-imparting materials that tell how to do something. The subtheme *understanding written directions* requires only that an individual indicate that he could perform what the directions state, given the opportunity. The subtheme *carry out written directions* requires the individual to perform what the directions state.

Theme 4: Reference Materials

Subtheme A: Know appropriate reference sources.
Subtheme B: Use reference materials effectively.

In order to utilize information from reference materials, an individual must first know which type of reference to consult for a specific kind of information. This is the requirement of the exercises in the subtheme *know appropriate reference sources*. Once

the appropriate source is located, an individual must be able to extract the desired information, that is, *use reference materials effectively*. (In all but one exercise in the latter subtheme, facsimilies of reference materials were used.)

Theme 5: Gleaning Significant Facts from Passages

This theme requires the most concrete level of behavior toward line-by-line narrative. Some exercises require the individual to extract certain facts while the passage is still available to him for reference. Other exercises require the individual to recall certain facts when the passage is no longer available. Still other exercises require the individual to discern how certain facts relate to each other. While all three types of exercises are concerned with facts, they require increasingly higher levels of cognitive processes.

Only if a person can successfully glean important facts from the types of materials in Themes 2-5 is he able to function adequately as a reader. A good reader, however, is able to engage in higher levels of cognitive processes involving reading materials. These higher level behaviors are the topics of Themes 6-8. Most of the exercises involve line-by-line narrative, but some use materials like those in Themes 2-4.

Theme 6: Main Ideas and Organization

Identifying the main idea of a passage or discovering its organization requires a higher level of comprehension than merely grasping the important facts. Some exercises require the individual to identify the main idea being expressed in a passage either by suggesting an appropriate title or by identifying the point the author is trying to make. Other exercises require the individual to identify the mode in which the author organizes the facts.

Theme 7: Drawing Inferences

Drawing inferences requires that an individual derive a conclusion not explicitly stated in the passage but which logically follows from the organization of the passage and the information it contains. For some exercises, the individual needs only to rely on the information in the passage in order to derive a conclusion; for others, however, he must also have some additional information based upon his prior experience.

Theme 8: Critical Reading

Critical reading requires from an individual the highest levels of cognitive behavior in the Reading assessment: analysis and reasoning. In addition, the exercises require respondents to form an opinion about the passage. Critical reading represents a deep interaction between author and reader, possibly leading to an understanding that is greater than the contribution of either.[4]

Theme reports present results exercise by exercise. Summary reports like this one, however, deal with the larger picture and rely more heavily on median percentages derived from a number of results. The theme reports include actual exercises, scoring rationales, sample responses and so on. The summary report is more general, shifting the emphasis to overall performance patterns for various groups of people.

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[4]A detailed report on each of those eight themes, plus one on reading rate and comprehension is available from the United States Government Printing Office. See the inside cover of this report for a complete listing of titles and report numbers.

CHAPTER 2

SUMMARY RESULTS

Methods of Summarizing the Data

For each exercise, we describe a group's performance relative to the national level by subtracting the national percentage of success from the group's percentage of success and indicating whether the obtained differences (called effects) are large enough to be regarded as statistically reliable.[1] In summarizing the data, we are concerned with describing a group's *overall* performance relative to the national level on *sets* of exercises (objectives, themes, all Reading exercises).

Overall Performance

In summarizing a group's relative performance on a set of exercises, we would like to use a single number that best describes the group's overall performance relative to the national level on those exercises. One suitable number that describes such performances is the group's median effect or median difference from a national performance level. (The median is the point in a set of values, ordered from the highest to lowest value, above and below which 50% of the values occur.) It could be misleading to say that a group's overall performance is above or below the national level simply because its median effect is slightly above the national level (positive) or below the national level (negative). The overall performance of a group whose median effect is close to the national level (for example, 0.2) is probably more like that of the nation as a whole than very different from it.

Directional Tendency/Characteristic

We can attach little importance to unreliable effects for a single exercise. However, if a set of exercises is large enough

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[1]For a more thorough discussion of methods of describing both individual exercises and summary data see *Report 02-GIY, General Information Yearbook: Reading and Literature*, Chapter 8.

and if a large enough proportion of a group's effects occur above or below the national level, regardless of whether or not these effects are reliable, we have an indication that the group's overall performance tends to be above or below the national level. If in addition to having a large proportion of its effects occur in one direction, a group has many reliable effects, we have an even stronger indication that the group's overall performance differs from the national level. These tendencies and characteristics are shown in the even numbered tables in the summary data. We have adopted the following rules to determine when a group's overall performance (1) tends to be about the same as the national level, (2) tends to be different (differs weakly) from the national level, or (3) is characteristically different (differs strongly) from the national level.

1. A group's overall performance on a set of exercises *tends to be about the same* as the national level if fewer than 75% of its effects occur either above or below the national level. In other words, if a group's upper quartile effect is positive (greater than zero) and its lower quartile effect is negative (less than zero) the group's overall performance tends to be about the same as the national level.[2] (These sets of exercises are indicated by a 0 on the tables of tendencies and differences.)

2a. A group's overall performance on a set of exercises *tends to be above* the national level if at least 75% of its effects are positive. In other words, if a group's lower quartile effect is positive, the group's overall performance tends to be above the national level. (These tendencies are indicated by a + on the tables of tendencies and characteristics.)

2b. A group's overall performance on a set of exercises *tends to be below* the national level if at least 75% of its effects are negative. In other words, if a group's upper quartile effect is negative, the group's overall performance tends to be below the national level. (These tendencies are indicated by a - on the tables of tendencies and differences.)

3a. A group's overall performance on a set of exercises *is characteristically above* the national level if at least

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[2]In a set of values, ordered from the highest to the lowest, the upper quartile is the point below which 75% of the values occur and the lower quartile is the point below which 25% of the values occur.

75% of its effects are positive *and* if more than 50% of its effects are statistically reliable. (These characteristics are indicated by a ++ on the tables of tendencies and differences.)

3b. A group's overall performance on a set of exercises *is characteristically below* the national level if at least 75% of its effects are negative *and* if more than 50% of its effects are statistically reliable. (These characteristics are indicated by a -- on the tables of tendencies and differences.)

Rules 1, 2a and 2b do not apply if fewer than 11 effects are summarized in a given set of exercises. At least 11 effects are necessary for us to make a reliable statement about the direction of a group's overall performance based only on the number of effects occurring in one direction or the other. Rules 3a and 3b apply for any number of effects being summarized. We have adopted a special rule that applies when fewer than 11 effects are being summarized.

4. A group's overall performance on a set of fewer than 11 exercises *has no reliable directional tendency.* (This is indicated by a # on the tables of tendencies and characteristics.)

These rules give us the means of comparing the overall performance of any given group on the five assessed objectives,[3] on the eight themes and at the four age levels. Within a given set of exercises and at a given age level, we can also compare the overall performances among the groups within each variable.

Limitations of Interpreting Summary Data

All the limitations of interpreting individual exercise data[4] apply to interpreting summary data as well. In addition, certain special limitations apply to interpreting summary data.

A median effect for a given group *does not* reflect the overall difficulty level of the set of exercises it covers. It does reflect the overall difficulty level for the given group relative to the national level on the set of exercises. This concept is most easily

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[3]Objective VI was not assessed in Year 02.

[4]See *Report 02-GIY, General Information Yearbook: Reading and Literature*, (Washington, DC: Government Printing Office, 1972), p. 10.

explained using the variable "sex" and the groups "male" and "female" as an example. In Reading we have found that males usually perform below the national level and that females usually perform above the national level. Suppose that on a given set of exercises, females have a median effect of 2.5 and males have a median effect of -2.5, while on another set of exercises, females have a median effect of 3.5 and males have a median effect of -3.5. We cannot say that the second set of exercises is easier because the females have a larger positive median effect or that the second set of exercises is more difficult because the males have a larger negative effect. We can simply say that the second set of exercises is more difficult for males relative to the national level and easier for females relative to the national level.

Caution must also be used in making age level comparisons. All exercises for each age level are not overlapping; that is, some different exercises are administered at different age levels. One group may have a somewhat harder or easier set of exercises to respond to, in part accounting for differences in results.

Whenever data are summarized, some information is lost. The median effect gives a numerical value that describes a group's performance relative to the national level on a set of exercises, and the directional tendency/characteristic describes the strength of the median effect relative to the national level. The summary data do not tell us, however, on which exercises a group does especially well or performs differently than we would expect on the basis of the group's overall performance.

When we compare the median effects for a given group on different themes, objectives and age levels, nearly equal median effects mean that the group is maintaining a constant position relative to the national level. To the degree that a group's median effects are unequal, the group's relative performance is varying on the themes or objectives.

How to Read the Following Tables

Summary data for the Reading assessment are presented in the following tables. Median group effects are shown in the odd-numbered tables; directional tendencies and characteristics are displayed in the even-numbered tables.

Median group effects are expressed numerically while symbols are used to indicate directional tendencies and characteristics. A zero (0) means that group performance tends to be the same as the national level of performance (rule 1), a single plus or minus (+ or -) that the group performance tends to be above or below the national level (rule 2a and b) and a double plus or minus (++ or --) that performance is characteristically above or below the national level

(rule 3a and b). A number sign (#) indicates that there were not enough exercises summarized to determine directional tendency reliably (rule 4).

The first pair of tables shows median group effects and directional tendencies and characteristics for all exercises at each age level. Succeeding tables give the same information for each National Assessment reporting group.

Each table for the different reporting groups lists themes and objectives down the left side of the table and the four age groups across the top, as shown in the example (Exhibit A).

This example shows directional tendencies and characteristics for males. Group median effect tables are set up in the same way using numerical values rather than symbols.

To compare performance for a group, in this case, males on Theme 1 across the four age levels, we look horizontally across the data shown beside Theme 1 and note that 9-year-olds show a 0, 13-year-olds a --, 17-year-olds also a -- and adults a -. This means that 9-year-old male performance tends to be about the same as the national level, 13 and 17-year-old performance is characteristically below the national level and adults tend to be below the national level. On Theme 7, 9, 13 and 17-year-old males perform characteristically below the national level while adults tend to perform above the national level.

We read down the column under the age designation to compare the group's performance on the various themes and objectives for a specific age level. For age 9, performance tends to be about the same as the national level for Themes 1 and 2, tends to be below the national level for Theme 3 and is characteristically below the national level for Themes 4 through 8. Nine-year-old male performance on all objectives is characteristically below the national level except for Objective V where there are an insufficient number of effects to determine directional tendency. At age 13, performance on Themes 2 and 6 tends to be below the national level while performance on all other themes is characteristically below the national level.

To relate 9 and 13-year-old performance across themes and objectives, compare the respective vertical columns. Exercise some caution in these age comparisons, however, because each age group's median difference is based upon a different set of exercises. Use the horizontal rows to consider performance of all age groups on a particular theme or objective.

To compare the performance of different reporting groups, one must consult the tables provided for each group. Each table is read as described above, and the desired comparisons can then be made.

EXHIBIT A. Directional Tendencies and Characteristics for Males at All Age Levels for All Themes and All Objectives

	Age Level			
	9	13	17	Adult
Themes				
1: Words and word relationships	0	--	--	-
2: Graphic materials	0	-	-	0
3: Written directions	-	--	--	0*
4: Reference materials	--	--	--	0
5: Significant facts	--	--	--	0
6: Main ideas and organization	--	-	--	0
7: Drawing inferences	--	--	--	+
8: Critical reading	--	--	--	0
Objectives				
I: Comprehend what is read	--	--	--	0
II: Analyze what is read	--	-	--	0
III: Use what is read	--	--	--	0
IV: Reason logically from what is read	--	--	-	0
V: Make judgments concerning what is read	--*	--*	--*	
All exercises	--	--	--	0

*Caution should be used in interpreting these directional tendencies/characteristics; they may be unreliable due to the small number of effects summarized.

SUMMARY EXHIBITS

EXHIBIT 1. Median Group Effects on All Exercises at Age Levels 9, 13, 17 and Young Adult

Variables and Groups	Age Level			
	9 (159)*	13 (249)*	17 (206)*	Adult (97)*
Region				
Southeast	-5.9	-4.8	-4.9	-8.1
West	-0.9	-0.2	-0.1	2.3
Central	3.0	2.3	1.9	1.3
Northeast	2.2	2.2	1.6	1.0
Sex				
Male	-2.3	-2.5	-2.0	0.3
Female	2.3	2.4	2.0	-0.2
Color				
Black	-16.3	-15.5	-16.3	-18.6
White	2.8	2.8	2.3	2.5
Parental education				
No high school	-9.1	-11.9	-11.1	-6.6
Some high school	-4.8	-4.4	-5.9	-0.4
Graduated high school	0.7	0.6	-0.3	2.9
Post high school	6.8	6.8	5.7	8.0
Size and type of community (in-school only)				
Extreme inner city	-14.3	-8.0	-7.7	
Extreme rural	-4.3	-3.9	-2.6	
Small city	-0.6	-0.5	-1.3	
Medium city	0.1	0.4	0.8	
Rest of big city	1.4	-1.2	1.4	
Suburban fringe	2.2	2.3	1.2	
Extreme affluent suburb	8.4	5.7	5.7	
Size of community				
Big city				-3.6
Small place				0.6
Medium city				0.9
Urban fringe				1.9

*Number of effects summarized.

EXHIBIT 2. Group Directional Tendencies/Characteristics on All Exercises at Age Levels 9, 13, 17 and Young Adult

Variables and Groups	Age Level			
	9 (159)*	13 (249)*	17 (206)*	Adult (97)*
Region				
Southeast	--	--	--	--
West	0	0	0	+
Central	+	+	+	+
Northeast	+	+	+	0
Sex				
Male	--	--	--	0
Female	++	++	++	0
Color				
Black	--	--	--	--
White	++	++	++	++
Parental education				
No high school	--	--	--	--
Some high school	-	-	--	0
Graduated high school	0	0	0	+
Post high school	++	++	++	++
Size and type of community (in-school only)				
Extreme inner city	--	--	--	
Extreme rural	-	-	-	
Small city	0	0	-	
Medium city	0	0	0	
Rest of big city	0	0	0	
Suburban fringe	+	+	0	
Extreme affluent suburb	++	++	++	
Size of community				
Big city				-
Small place				0
Medium city				0
Urban fringe				+

*Number of effects summarized.

EXHIBIT 3. Median Effects for the *Southeast* Region at Age Levels 9, 13, 17 and Young Adult on Themes 1-8, Objectives I-V and All Exercises

	Age Level			
	9	13	17	Adult
Themes				
1: Words and word relationships	-7.2	-5.2	-3.4	-10.9
2: Graphic materials	-6.2	-4.2	-3.7	-7.2
3: Written directions	-4.3	-7.2	-4.9	-7.9
4: Reference materials	-4.9	-4.8	-7.4	-8.1
5: Significant facts	-4.4	-4.8	-4.4	-6.7
6: Main ideas and organization	-5.8	-4.5	-4.7	-8.0
7: Drawing inferences	-7.2	-3.9	-5.8	-10.7
8: Critical reading	-6.4	-4.4	-5.3	-7.9
Objectives				
I: Comprehend what is read	-5.6	-4.8	-4.8	-8.1
II: Analyze what is read	-5.5	-4.4	-4.9	-9.3
III: Use what is read	-6.2	-5.4	-4.7	-7.1
IV: Reason logically from what is read	-6.4	-4.0	-4.9	-7.1
V: Make judgments concerning what is read	-8.6	-3.9	-7.3	
All exercises	-5.9	-4.8	-4.9	-8.1

EXHIBIT 4. Directional Tendencies/Characteristics for the *Southeast* Region at Age Levels 9, 13, 17 and Young Adult on Themes 1-8, Objectives I-V and All Exercises

	Age Level			
	9	13	17	Adult
Themes				
1: Words and word relationships	--	--	--	--
2: Graphic materials	--	--	--	--
3: Written directions	#	--	--	--
4: Reference materials	--	--	--	--
5: Significant facts	--	--	--	--
6: Main ideas and organization	--	-	--	--
7: Drawing inferences	--	--	--	--
8: Critical reading	--	--	--	--
Objectives				
I: Comprehend what is read	--	--	--	--
II: Analyze what is read	--	--	--	--
III: Use what is read	--	--	--	--
IV: Reason logically from what is read	--	-	--	--
V: Make judgments concerning what is read	--	#	--	
All exercises	--	--	--	--

EXHIBIT 5. Median Effects for the *West* Region at Age Levels 9, 13, 17 and Young Adult on Themes 1-8, Objectives I-V and All Exercises

	Age Level			
	9	13	17	Adult
Themes				
1: Words and word relationships	0.7	-2.2	-1.1	4.2
2: Graphic materials	-0.6	0.1	0.0	2.8
3: Written directions	-1.3	0.6	0.4	2.1
4: Reference materials	-3.0	0.4	0.2	1.5
5: Significant facts	-1.1	-1.0	-0.3	1.9
6: Main ideas and organization	-1.2	-0.6	-1.3	2.2
7: Drawing inferences	-0.5	0.0	0.4	4.3
8: Critical reading	-0.8	-0.5	0.1	1.6
Objectives				
I: Comprehend what is read	-0.8	-0.5	-0.7	2.2
II: Analyze what is read	-1.0	-0.5	-0.2	4.5
III: Use what is read	-1.2	0.3	0.1	1.5
IV: Reason logically from what is read	-0.8	-0.2	0.1	2.4
V: Make judgments concerning what is read	-0.6	-2.6	-2.2	
All exercises	-0.9	-0.2	-0.1	2.3

EXHIBIT 6. Directional Tendencies/Characteristics for the *West* Region at Age Levels 9, 13, 17 and Young Adult on Themes 1-8, Objectives I-V and All Exercises

	Age Level			
	9	13	17	Adult
Themes				
1: Words and word relationships	0	-	-	#
2: Graphic materials	0	0	0	+
3: Written directions	#	0	0	#
4: Reference materials	-	0	0	#
5: Significant facts	0	-	0	+
6: Main ideas and organization	0	0	-	#
7: Drawing inferences	0	0	0	+
8: Critical reading	-	0	0	+
Objectives				
I: Comprehend what is read	0	0	0	+
II: Analyze what is read	0	0	0	#
III: Use what is read	0	0	0	+
IV: Reason logically from what is read	0	0	0	+
V: Make judgments concerning what is read	#	#	#	
All exercises	0	0	0	+

EXHIBIT 7. Median Effects for the *Central* Region at Age Levels 9, 13, 17 and Young Adult on Themes 1-8, Objectives I-V and All Exercises

	Age Level			
	9	13	17	Adult
Themes				
1: Words and word relationships	1.8	3.5	0.8	1.3
2: Graphic materials	3.4	2.2	2.8	1.5
3: Written directions	3.6	2.8	2.8	3.3
4: Reference materials	3.1	2.6	3.5	3.0
5: Significant facts	2.7	2.3	1.6	1.5
6: Main ideas and organization	3.2	2.8	1.7	0.9
7: Drawing inferences	3.2	1.8	1.7	0.2
8: Critical reading	2.6	2.1	1.4	1.0
Objectives				
I: Comprehend what is read	2.9	2.3	1.7	1.3
II: Analyze what is read	2.9	2.5	1.5	0.0
III: Use what is read	3.1	2.7	2.8	1.8
IV: Reason logically from what is read	3.3	1.9	1.8	0.5
V: Make judgments concerning what is read	3.4	1.6	4.0	
All exercises	3.0	2.3	1.9	1.3

EXHIBIT 8. Directional Tendencies/Characteristics for the *Central* Region at Age Levels 9, 13, 17 and Young Adult on Themes 1-8, Objectives I-V and All Exercises

	Age Level			
	9	13	17	Adult
Themes				
1: Words and word relationships	+	+	+	#
2: Graphic materials	++	+	++	+
3: Written directions	#	+	++	#
4: Reference materials	+	+	++	#
5: Significant facts	+	+	+	+
6: Main ideas and organization	+	+	+	#
7: Drawing inferences	+	+	+	0
8: Critical reading	+	+	+	0
Objectives				
I: Comprehend what is read	+	+	+	+
II: Analyze what is read	+	+	+	#
III: Use what is read	+	+	++	+
IV: Reason logically from what is read	+	+	+	+
V: Make judgments concerning what is read	++	#	++	
All exercises	+	+	+	+

EXHIBIT 9. Median Effects for the *Northeast* Region at Age Levels 9, 13, 17 and Young Adult on Themes 1-8, Objectives I-V and All Exercises

	Age Level			
	9	13	17	Adult
Themes				
1: Words and word relationships	2.5	1.5	1.9	1.9
2: Graphic materials	1.7	1.9	1.2	0.2
3: Written directions	0.4	1.6	0.6	2.0
4: Reference materials	2.3	2.0	2.5	2.5
5: Significant facts	1.9	2.7	1.7	1.0
6: Main ideas and organization	1.8	2.4	2.5	1.4
7: Drawing inferences	2.4	1.7	1.6	2.4
8: Critical reading	2.6	3.0	1.2	2.0
Objectives				
I: Comprehend what is read	2.1	2.2	2.1	1.0
II: Analyze what is read	2.1	3.1	1.2	1.4
III: Use what is read	2.4	2.3	1.3	0.5
IV: Reason logically from what is read	2.2	1.3	0.9	1.4
V: Make judgments concerning what is read	4.7	4.6	2.8	
All exercises	2.2	2.2	1.6	1.0

EXHIBIT 10. Directional Tendencies/Characteristics for the *Northeast* Region at Age Levels 9, 13, 17 and Young Adult on Themes 1-8, Objectives I-V and All Exercises

	Age Level			
	9	13	17	Adult
Themes				
1: Words and word relationships	+	0	+	#
2: Graphic materials	+	+	0	0
3: Written directions	#	+	0	#
4: Reference materials	+	+	+	#
5: Significant facts	+	+	+	0
6: Main ideas and organization	+	+	+	#
7: Drawing inferences	+	+	+	+
8: Critical reading	+	+	0	+
Objectives				
I: Comprehend what is read	+	+	+	0
II: Analyze what is read	+	+	0	#
III: Use what is read	+	+	0	0
IV: Reason logically from what is read	+	+	0	+
V: Make judgments concerning what is read	#	#	++	
All exercises	+	+	+	0

EXHIBIT 11. Median Effects for *Males* at Age Levels 9, 13, 17 and Young Adult on Themes 1-8, Objectives I-V and All Exercises

	Age Level			
	9	13	17	Adult
Themes				
1: Words and word relationships	-1.3	-2.6	-2.5	-0.9
2: Graphic materials	-1.3	-1.4	-1.3	2.0
3: Written directions	-2.1	-3.4	-2.8	-0.3
4: Reference materials	-2.2	-2.9	-1.4	-0.6
5: Significant facts	-3.1	-3.6	-1.8	0.0
6: Main ideas and organization	-1.9	-1.7	-2.4	0.7
7: Drawing inferences	-2.4	-2.3	-1.9	1.0
8: Critical reading	-2.8	-2.2	-2.8	-0.1
Objectives				
I: Comprehend what is read	-2.2	-2.3	-2.1	-0.1
II: Analyze what is read	-2.8	-1.7	-3.0	-0.4
III: Use what is read	-2.2	-2.6	-1.6	0.9
IV: Reason logically from what is read	-2.4	-2.1	-0.6	1.1
V: Make judgments concerning what is read	-2.1	-3.7	-2.6	
All exercises	-2.3	-2.5	-2.0	0.3

EXHIBIT 12. Directional Tendencies/Characteristics for *Males* at Age Levels 9, 13, 17 and Young Adult on Themes 1-8, Objectives I-V and All Exercises

	Age Level			
	9	13	17	Adult
Themes				
1: Words and word relationships	0	--	--	#
2: Graphic materials	0	-	-	0
3: Written directions	#	--	--	#
4: Reference materials	--	--	-	#
5: Significant facts	--	--	--	0
6: Main ideas and organization	--	-	--	#
7: Drawing inferences	--	--	--	+
8: Critical reading	--	--	--	0
Objectives				
I: Comprehend what is read	--	--	--	0
II: Analyze what is read	--	-	--	#
III: Use what is read	--	--	--	0
IV: Reason logically from what is read	--	--	-	0
V: Make judgments concerning what is read	--	--	--	
All exercises	--	--	--	0

EXHIBIT 13. Median Effects for *Females* at Age Levels 9, 13, 17 and Young Adult on Themes 1-8, Objectives I-V and All Exercises

	Age Level			
	9	13	17	Adult
Themes				
1: Words and word relationships	1.3	2.6	2.2	0.9
2: Graphic materials	1.3	1.3	1.3	-1.9
3: Written directions	2.1	3.4	2.9	0.3
4: Reference materials	2.2	3.0	1.4	0.6
5: Significant facts	3.2	3.4	1.8	0.0
6: Main ideas and organization	1.9	1.7	2.2	-0.7
7: Drawing inferences	2.4	2.2	1.9	-1.0
8: Critical reading	2.8	2.2	2.8	0.1
Objectives				
I: Comprehend what is read	2.2	2.3	2.1	0.1
II: Analyze what is read	2.8	1.6	2.9	0.4
III: Use what is read	2.3	2.7	1.4	-0.8
IV: Reason logically from what is read	2.3	2.2	0.6	-1.0
V: Make judgments concerning what is read	2.1	3.9	2.3	
All exercises	2.3	2.4	2.0	-0.2

EXHIBIT 14. Directional Tendencies/Characteristics for *Females* at Age Levels 9, 13, 17 and Young Adult on Themes 1-8, Objectives I-V and All Exercises

	Age Level			
	9	13	17	Adult
Themes				
1: Words and word relationships	0	++	++	#
2: Graphic materials	0	+	+	0
3: Written directions	#	++	++	#
4: Reference materials	++	++	+	#
5: Significant facts	++	++	++	0
6: Main ideas and organization	++	+	++	#
7: Drawing inferences	++	++	++	-
8: Critical reading	++	++	++	0
Objectives				
I: Comprehend what is read	++	++	++	0
II: Analyze what is read	++	+	++	#
III: Use what is read	++	++	++	0
IV: Reason logically from what is read	++	++	+	0
V: Make judgments concerning what is read	++	++	++	
All exercises	++	++	++	0

EXHIBIT 15. Median Effects for *Blacks* at Age Levels 9, 13, 17 and Young Adult on Themes 1-8, Objectives I-V and All Exercises

	Age Level			
	9	13	17	Adult
Themes				
1: Words and word relationships	-16.3	-22.5	-15.8	-21.1
2: Graphic materials	-15.8	-13.2	-13.2	-18.3
3: Written directions	-11.2	-21.3	-15.6	-19.7
4: Reference materials	-14.9	-16.3	-21.6	-18.5
5: Significant facts	-15.2	-15.5	-15.1	-15.7
6: Main ideas and organization	-16.5	-18.2	-18.7	-21.5
7: Drawing inferences	-19.0	-13.7	-15.6	-19.9
8: Critical reading	-16.8	-16.0	-21.0	-23.7
Objectives				
I: Comprehend what is read	-15.3	-15.9	-15.6	-18.5
II: Analyze what is read	-20.8	-15.3	-17.0	-21.8
III: Use what is read	-15.8	-16.4	-16.9	-18.5
IV: Reason logically from what is read	-17.9	-15.1	-16.2	-20.0
V: Make judgments concerning what is read	-16.7	-16.8	-21.2	
All exercises	-16.3	-15.5	-16.3	-18.6

EXHIBIT 16. Directional Tendencies/Characteristics for *Blacks* at Age Levels 9, 13, 17 and Young Adult on Themes 1-8, Objectives I-V and All Exercises

	Age Level			
	9	13	17	Adult
Themes				
1: Words and word relationships	--	--	--	--
2: Graphic materials	--	--	--	--
3: Written directions	--	--	--	--
4: Reference materials	--	--	--	--
5: Significant facts	--	--	--	--
6: Main ideas and organization	--	--	--	--
7: Drawing inferences	--	--	--	--
8: Critical reading	--	--	--	--
Objectives				
I: Comprehend what is read	--	--	--	--
II: Analyze what is read	--	--	--	--
III: Use what is read	--	--	--	--
IV: Reason logically from what is read	--	--	--	--
V: Make judgments concerning what is read	--	--	--	
All exercises	--	--	--	--

EXHIBIT 17. Median Effects for *Whites* at Age Levels 9, 13, 17 and Young Adult on Themes 1-8, Objectives I-V and All Exercises

	Age Level			
	9	13	17	Adult
Themes				
1: Words and word relationships	2.7	3.7	2.0	2.7
2: Graphic materials	2.6	2.5	1.8	2.5
3: Written directions	1.9	3.6	2.3	2.6
4: Reference materials	2.7	2.8	2.9	2.3
5: Significant facts	2.5	2.9	2.3	2.0
6: Main ideas and organization	2.9	3.3	2.4	2.8
7: Drawing inferences	3.4	2.4	2.1	2.8
8: Critical reading	2.9	2.9	3.1	3.0
Objectives				
I: Comprehend what is read	2.6	2.7	2.2	2.3
II: Analyze what is read	3.4	2.6	2.3	2.8
III: Use what is read	2.6	2.3	2.2	2.4
IV: Reason logically from what is read	3.2	2.8	2.4	2.7
V: Make judgments concerning what is read	2.9	2.9	2.6	
All exercises	2.8	2.8	2.3	2.5

EXHIBIT 18. Directional Tendencies/Characteristics for *Whites* at Age Levels 9, 13, 17 and Young Adult on Themes 1-8, Objectives I-V and All Exercises

	Age Level			
	9	13	17	Adult
Themes				
1: Words and word relationships	++	++	++	++
2: Graphic materials	++	++	++	++
3: Written directions	++	++	++	++
4: Reference materials	++	++	++	++
5: Significant facts	++	++	++	++
6: Main ideas and organization	++	++	++	++
7: Drawing inferences	++	++	++	++
8: Critical reading	++	++	++	++
Objectives				
I: Comprehend what is read	++	++	++	++
II: Analyze what is read	++	++	++	++
III: Use what is read	++	++	++	++
IV: Reason logically from what is read	++	++	++	++
V: Make judgments concerning what is read	++	++	++	
All exercises	++	++	++	++

EXHIBIT 19. Median Effects for the *No High School* Group at Age Levels 9, 13, 17 and Young Adult on Themes 1-8, Objectives I-V and All Exercises

	Age Level			
	9	13	17	Adult
Themes				
1: Words and word relationships	-8.8	-13.7	-6.9	-9.9
2: Graphic materials	-7.9	-8.4	-7.8	-6.2
3: Written directions	-5.9	-15.1	-12.0	-5.8
4: Reference materials	-9.9	-13.4	-14.2	-5.4
5: Significant facts	-8.5	-12.8	-12.0	-5.5
6: Main ideas and organization	-7.8	-11.1	-10.4	-9.9
7: Drawing inferences	-11.8	-10.4	-11.0	-9.9
8: Critical reading	-8.8	-13.5	-15.8	-10.7
Objectives				
I: Comprehend what is read	-8.0	-11.3	-11.1	-5.9
II: Analyze what is read	-10.4	-10.8	-10.4	-11.5
III: Use what is read	-9.2	-13.0	-11.0	-6.4
IV: Reason logically from what is read	-10.0	-10.0	-12.1	-8.8
V: Make judgments concerning what is read	-8.7	-15.6	-16.4	
All exercises	-9.1	-11.9	-11.1	-6.6

EXHIBIT 20. Directional Tendencies/Characteristics for the *No High School* Group at Age Levels 9, 13, 17 and Young Adult on Themes 1-8, Objectives I-V and All Exercises

	Age Level			
	9	13	17	Adult
Themes				
1: Words and word relationships	--	--	--	--
2: Graphic materials	--	--	--	--
3: Written directions	#	--	--	--
4: Reference materials	--	--	--	--
5: Significant facts	-	--	--	--
6: Main ideas and organization	-	--	--	--
7: Drawing inferences	--	--	--	--
8: Critical reading	--	--	--	--
Objectives				
I: Comprehend what is read	--	--	--	--
II: Analyze what is read	--	--	--	--
III: Use what is read	--	--	--	--
IV: Reason logically from what is read	--	--	--	--
V: Make judgments concerning what is read	#	--	--	
All exercises	--	--	--	--

EXHIBIT 21. Median Effects for the *Some High School* Group at Age Levels 9, 13, 17 and Young Adult on Themes 1-8, Objectives I-V and All Exercises

	Age Level			
	9	13	17	Adult
Themes				
1: Words and word relationships	-4.1	-6.3	-5.2	-1.2
2: Graphic materials	-3.6	-3.4	-4.3	0.1
3: Written directions	-4.9	-5.4	-4.0	-0.2
4: Reference materials	-2.8	-5.0	-6.5	-1.7
5: Significant facts	-3.6	-4.3	-4.8	0.6
6: Main ideas and organization	-5.7	-4.8	-7.8	-0.4
7: Drawing inferences	-7.0	-3.2	-5.9	-2.8
8: Critical reading	-4.7	-3.8	-7.2	-2.6
Objectives				
I: Comprehend what is read	-4.8	-4.6	-5.7	-0.1
II: Analyze what is read	-4.3	-4.3	-7.1	-2.5
III: Use what is read	-4.0	-4.9	-5.3	-0.2
IV: Reason logically from what is read	-5.5	-3.2	-6.5	-0.4
V: Make judgments concerning what is read	-7.5	-7.9	-8.9	
All exercises	-4.8	-4.4	-5.9	-0.4

EXHIBIT 22. Directional Tendencies/Characteristics for the *Some High School* Group at Age Levels 9, 13, 17 and Young Adult on Themes 1-8, Objectives I-V and All Exercises

	Age Level			
	9	13	17	Adult
Themes				
1: Words and word relationships	0	--	--	#
2: Graphic materials	-	-	--	0
3: Written directions	#	-	--	#
4: Reference materials	-	-	--	#
5: Significant facts	-	-	--	+
6: Main ideas and organization	-	-	--	#
7: Drawing inferences	-	-	--	-
8: Critical reading	-	-	--	0
Objectives				
I: Comprehend what is read	-	-	--	0
II: Analyze what is read	-	-	--	#
III: Use what is read	-	-	--	0
IV: Reason logically from what is read	-	-	--	0
V: Make judgments concerning what is read	#	--	--	
All exercises	-	-	--	0

EXHIBIT 23. Median Effects for the *Graduated from High School* Group at Age Levels 9, 13, 17 and Young Adult on Themes 1-8, Objectives I-V and All Exercises

	Age Level			
	9	13	17	Adult
Themes				
1: Words and word relationships	1.0	1.3	-0.6	3.2
2: Graphic materials	0.5	0.6	0.3	3.4
3: Written directions	-0.2	1.0	0.6	2.2
4: Reference materials	1.7	0.8	0.6	2.8
5: Significant facts	0.7	0.9	-0.2	1.7
6: Main ideas and organization	0.8	0.2	-0.7	2.2
7: Drawing inferences	1.3	0.2	-0.4	3.3
8: Critical reading	-0.1	0.4	-0.9	3.5
Objectives				
I: Comprehend what is read	0.7	0.5	-0.6	2.7
II: Analyze what is read	0.3	0.9	-0.4	2.8
III: Use what is read	0.8	0.8	0.5	3.0
IV: Reason logically from what is read	1.2	0.1	-0.3	3.3
V: Make judgments concerning what is read	-1.0	0.8	-0.1	
All exercises	0.7	0.6	-0.3	2.8

EXHIBIT 24. Directional Tendencies/Characteristics for the *Graduated from High School* Group at Age Levels 9, 13, 17 and Young Adult on Themes 1-8, Objectives I-V and All Exercises

	Age Level			
	9	13	17	Adult
Themes				
1: Words and word relationships	0	+	-	#
2: Graphic materials	+	+	0	++
3: Written directions	#	+	0	#
4: Reference materials	+	0	+	#
5: Significant facts	0	+	0	+
6: Main ideas and organization	0	0	0	#
7: Drawing inferences	+	0	0	+
8: Critical reading	0	0	-	+
Objectives				
I: Comprehend what is read	0	0	0	+
II: Analyze what is read	0	0	0	#
III: Use what is read	0	0	0	+
IV: Reason logically from what is read	+	0	0	+
V: Make judgments concerning what is read	#	#	#	
All exercises	0	0	0	+

EXHIBIT 25. Median Effects for the *Post High School* Group at Age Levels 9, 13, 17 and Young Adult on Themes 1-8, Objectives I-V and All Exercises

	Age Level			
	9	13	17	Adult
Themes				
1: Words and word relationships	5.7	7.0	4.2	10.8
2: Graphic materials	6.1	5.7	4.2	6.9
3: Written directions	6.3	7.9	5.4	7.3
4: Reference materials	7.2	7.2	6.3	7.6
5: Significant facts	6.9	7.1	5.1	5.7
6: Main ideas and organization	5.9	7.5	6.2	9.2
7: Drawing inferences	7.6	5.8	6.1	14.2
8: Critical reading	7.5	7.3	8.4	11.5
Objectives				
I: Comprehend what is read	6.6	6.8	5.6	7.2
II: Analyze what is read	7.4	6.9	6.0	13.4
III: Use what is read read	6.9	7.1	5.1	7.8
IV: Reason logically from what is read	6.9	5.7	6.3	10.6
V: Make judgments concerning what is read	9.4	7.3	7.2	
All exercises	6.8	6.8	5.7	8.0

EXHIBIT 26. Directional Tendencies/Characteristics for the *Post High School* Group at Age Levels 9, 13, 17 and Young Adult on Themes 1-8, Objectives I-V and All Exercises

	Age Level			
	9	13	17	Adult
Themes				
1: Words and word relationships	++	++	++	++
2: Graphic materials	++	++	++	++
3: Written directions	++	++	++	++
4: Reference materials	++	++	++	++
5: Significant facts	++	++	++	++
6: Main ideas and organization	++	++	++	++
7: Drawing inferences	++	++	++	++
8: Critical reading	++	++	++	++
Objectives				
I: Comprehend what is read	++	++	++	++
II: Analyze what is read	++	++	++	++
III: Use what is read	++	++	++	++
IV: Reason logically from what is read	++	++	++	++
V: Make judgments concerning what is read	++	++	++	
All exercises	++	++	++	++

EXHIBIT 27. Median Effects for the *Extreme Inner City* Group at Age Levels 9, 13 and In-School 17 on Themes 1-8, Objectives I-V and All Exercises

	Age Level		
	9	13	17 In-School
Themes			
1: Words and word relationships	-11.7	-9.2	-6.2
2: Graphic materials	-9.9	-7.2	-6.6
3: Written directions	-9.5	-9.3	-10.3
4: Reference materials	-14.9	-7.1	-7.8
5: Significant facts	-14.4	-8.0	-7.5
6: Main ideas and organization	-15.7	-8.6	-7.3
7: Drawing inferences	-15.3	-6.7	-8.9
8: Critical reading	-13.3	-9.6	-10.0
Objectives			
I: Comprehend what is read	-12.5	-8.1	-7.6
II: Analyze what is read	-13.9	-8.5	-7.6
III: Use what is read	-15.3	-8.5	-7.7
IV: Reason logically from what is read	-15.2	-6.5	-8.1
V: Make judgments concerning what is read	-13.7	-8.8	-12.2
All exercises	-14.3	-8.0	-7.7

EXHIBIT 28. Directional Tendencies/Characteristics for the *Extreme Inner City* Group at Age Levels 9, 13 and In-School 17 on Themes 1-8, Objectives I-V and All Exercises

	Age Level		
	9	13	17 In-School
Themes			
1: Words and word relationships	--	--	-
2: Graphic materials	--	-	-
3: Written directions	--	--	--
4: Reference materials	--	--	--
5: Significant facts	--	-	-
6: Main ideas and organization	--	--	--
7: Drawing inferences	--	--	--
8: Critical reading	--	-	--
Objectives			
I: Comprehend what is read	--	--	--
II: Analyze what is read	--	--	-
III: Use what is read	--	--	--
IV: Reason logically from what is read	--	-	-
V: Make judgments concerning what is read	--	#	--
All exercises	--	--	--

EXHIBIT 29. Median Effects for the *Extreme Rural* Group at Age Levels 9, 13 and In-School 17 on Themes 1-8, Objectives I-V and All Exercises

	Age Level		
	9	13	17 In-School
Themes			
1: Words and word relationships	-3.0	-7.3	-1.6
2: Graphic materials	-4.3	-3.7	-2.5
3: Written directions	-3.8	-4.6	-2.7
4: Reference materials	-8.2	-4.7	-3.4
5: Significant facts	-3.7	-3.8	-1.4
6: Main ideas and organization	-4.1	-4.2	-3.4
7: Drawing inferences	-5.1	-2.2	-2.7
8: Critical reading	-4.0	-4.1	-4.1
Objectives			
I: Comprehend what is read	-4.3	-3.8	-2.4
II: Analyze what is read	-4.6	-4.3	-2.9
III: Use what is read	-4.1	-4.6	-2.3
IV: Reason logically from what is read	-4.7	-3.1	-2.8
V: Make judgments concerning what is read	-4.7	-2.6	-5.3
All exercises	-4.3	-3.9	-2.6

EXHIBIT 30. Directional Tendencies/Characteristics for the *Extreme Rural* Group at Age Levels 9, 13 and In-School 17 on Themes 1-8, Objectives I-V and All Exercises

	Age Level		
	9	13	17 In-School
Themes			
1: Words and word relationships	0	-	0
2: Graphic materials	-	-	0
3: Written directions	#	-	-
4: Reference materials	-	-	-
5: Significant facts	-	-	0
6: Main ideas and organization	-	-	-
7: Drawing inferences	-	-	-
8: Critical reading	-	-	-
Objectives			
I: Comprehend what is read	-	-	-
II: Analyze what is read	-	-	-
III: Use what is read	-	-	-
IV: Reason logically from what is read	-	-	-
V: Make judgments concerning what is read	#	#	#
All exercises	-	-	-

EXHIBIT 31. Median Effects for the *Small City* Group at Age Levels 9, 13 and In-School 17 on Themes 1-8, Objectives I-V and All Exercises

	Age Level		
	9	13	17 In-School
Themes			
1: Words and word relationships	-0.1	0.6	-2.0
2: Graphic materials	-0.1	-0.4	-1.1
3: Written directions	0.9	0.6	-1.1
4: Reference materials	-1.6	-1.2	-2.4
5: Significant facts	0.0	-1.2	-1.5
6: Main ideas and organization	-1.5	-0.5	-0.5
7: Drawing inferences	-0.7	-0.2	-1.5
8: Critical reading	-0.5	-0.8	-1.1
Objectives			
I: Comprehend what is read	-0.8	-0.6	-1.5
II: Analyze what is read	-0.9	0.7	-1.6
III: Use what is read	-0.2	-0.4	-1.1
IV: Reason logically from what is read	-0.2	0.1	-0.9
V: Make judgments concerning what is read	-3.0	-2.1	-1.1
All exercises	-0.6	-0.5	-1.3

EXHIBIT 32. Directional Tendencies/Characteristics for the *Small City* Group at Age Levels 9, 13 and In-School 17 on Themes 1-8, Objectives I-V and All Exercises

	Age Level		
	9	13	17 In-School
Themes			
1: Words and word relationships	0	0	-
2: Graphic materials	0	0	-
3: Written directions	#	0	-
4: Reference materials	0	0	-
5: Significant facts	0	0	-
6: Main ideas and organization	-	0	0
7: Drawing inferences	0	0	-
8: Critical reading	0	0	0
Objectives			
I: Comprehend what is read	0	0	-
II: Analyze what is read	0	0	0
III: Use what is read	0	0	-
IV: Reason logically from what is read	0	0	0
V: Make judgments concerning what is read	#	#	#
All exercises	0	0	-

EXHIBIT 33. Median Effects for the *Medium City* Group at Age Levels 9, 13 and In-School 17 on Themes 1-8, Objectives I-V and All Exercises

	Age Level		
	9	13	17 In-School
Themes			
1: Words and word relationships	0.1	0.6	0.7
2: Graphic materials	-0.2	0.7	0.5
3: Written directions	0.7	-0.3	1.2
4: Reference materials	0.2	1.0	0.3
5: Significant facts	0.1	0.2	1.7
6: Main ideas and organization	1.0	-0.4	0.1
7: Drawing inferences	0.1	0.2	-0.1
8: Critical reading	-0.4	0.8	1.0
Objectives			
I: Comprehend what is read	0.3	0.7	0.9
II: Analyze what is read	-0.2	-0.7	0.9
III: Use what is read	-0.2	0.3	0.8
IV: Reason logically from what is read	0.1	0.4	0.4
V: Make judgments concerning what is read	2.4	1.3	1.4
All exercises	0.1	0.4	0.8

EXHIBIT 34. Directional Tendencies/Characteristics for the *Medium City* Group at Age Levels 9, 13 and In-School 17 on Themes 1-8, Objectives I-V and All Exercises

	Age Level		
	9	13	17 In-School
Themes			
1: Words and word relationships	0	0	0
2: Graphic materials	0	0	0
3: Written directions	#	0	+
4: Reference materials	0	0	0
5: Significant facts	0	0	+
6: Main ideas and organization	0	0	0
7: Drawing inferences	0	0	0
8: Critical reading	0	0	+
Objectives			
I: Comprehend what is read	0	0	0
II: Analyze what is read	0	0	0
III: Use what is read	0	0	0
IV: Reason logically from what is read	0	0	0
V: Make judgments concerning what is read	#	#	#
All exercises	0	0	0

EXHIBIT 35. Median Effects for the *Rest of Big City* Group at Age Levels 9, 13 and In-School 17 on Themes 1-8, Objectives I-V and All Exercises

	Age Level		
	9	13	17 In-School
Themes			
1: Words and word relationships	0.9	-0.9	2.5
2: Graphic materials	2.1	-1.0	0.7
3: Written directions	-0.6	0.3	1.0
4: Reference materials	0.6	-1.5	2.5
5: Significant facts	0.8	-1.4	1.9
6: Main ideas and organization	0.2	-2.3	2.1
7: Drawing inferences	2.9	-0.8	1.3
8: Critical reading	1.9	-1.8	1.7
Objectives			
I: Comprehend what is read	1.3	-1.2	2.0
II: Analyze what is read	1.7	-1.6	2.1
III: Use what is read	1.4	-0.9	1.0
IV: Reason logically from what is read	1.3	-1.8	0.3
V: Make judgments concerning what is read	6.2	-1.9	0.1
All exercises	1.4	-1.2	1.4

EXHIBIT 36. Directional Tendencies/Characteristics for the *Rest of Big City* Group at Age Levels 9, 13 and In-School 17 on Themes 1-8, Objectives I-V and All Exercises

	Age Level		
	9	13	17 In-School
Themes			
1: Words and word relationships	0	0	0
2: Graphic materials	0	0	0
3: Written directions	#	0	0
4: Reference materials	0	0	+
5: Significant facts	0	0	0
6: Main ideas and organization	0	0	+
7: Drawing inferences	+	0	0
8: Critical reading	+	0	+
Objectives			
I: Comprehend what is read	0	0	0
II: Analyze what is read	0	0	+
III: Use what is read	0	0	0
IV: Reason logically from what is read	0	0	0
V: Make judgments concerning what is read	#	#	#
All exercises	0	0	0

EXHIBIT 37. Median Effects for the *Suburban Fringe* Group at Age Levels 9, 13 and In-School 17 on Themes 1-8, Objectives I-V and All Exercises

	Age Level		
	9	13	17 In-School
Themes			
1: Words and word relationships	2.6	2.2	0.0
2: Graphic materials	1.5	2.7	1.3
3: Written directions	2.0	1.8	2.6
4: Reference materials	5.3	2.8	2.5
5: Significant facts	1.0	3.0	0.6
6: Main ideas and organization	2.1	1.8	0.8
7: Drawing inferences inferences	2.2	2.0	1.8
8: Critical reading	1.1	2.2	0.9
Objectives			
I: Comprehend what is read	2.3	2.3	0.7
II: Analyze what is read	1.9	1.5	1.0
III: Use what is read	2.8	2.9	1.7
IV: Reason logically from what is read	1.9	2.0	1.1
V: Make judgments concerning what is read	5.1	3.7	3.1
All exercises	2.2	2.3	1.2

EXHIBIT 38. Directional Tendencies/Characteristics for the *Suburban Fringe* Group at Age Levels 9, 13 and In-School 17 on Themes 1-8, Objectives I-V and All Exercises

	Age Level		
	9	13	17 In-School
Themes			
1: Words and word relationships	+	+	0
2: Graphic materials	+	+	+
3: Written directions	#	+	+
4: Reference materials	+	+	+
5: Significant facts	0	+	0
6: Main ideas and organization	0	+	0
7: Drawing inferences	+	0	0
8: Critical reading	+	+	0
Objectives			
I: Comprehend what is read	+	+	0
II: Analyze what is read	+	+	0
III: Use what is read	+	+	+
IV: Reason logically from what is read	0	0	0
V: Make judgments concerning what is read	#	#	++
All exercises	+	+	0

EXHIBIT 39. Median Effects for the *Extreme Affluent Suburb* Group at Age Levels 9, 13 and In-School 17 on Themes 1-8, Objectives I-V and All Exercises

	Age Level		
	9	13	17 In-School
Themes			
1: Words and word relationships	7.2	4.9	4.8
2: Graphic materials	7.8	4.4	4.9
3: Written directions	5.6	6.5	5.1
4: Reference materials	9.1	5.7	7.6
5: Significant facts	8.7	7.9	5.8
6: Main ideas and organization	8.0	7.3	7.1
7: Drawing inferences	9.3	5.0	5.9
8: Critical reading	8.3	5.8	7.6
Objectives			
I: Comprehend what is read	8.2	5.6	5.9
II: Analyze what is read	10.4	6.1	5.1
III: Use what is read	8.4	5.7	5.0
IV: Reason logically from what is read	8.6	4.4	6.9
V: Make judgments concerning what is read	9.3	7.2	7.6
All exercises	8.4	5.7	5.7

EXHIBIT 40. Directional Tendencies/Characteristics for the *Extreme Affluent Suburb* Group at Age Levels 9, 13 and In-School 17 on Themes 1-8, Objectives I-V and All Exercises

	Age Level		
	9	13	17 In-School
Themes			
1: Words and word relationships	++	+	++
2: Graphic materials	++	+	++
3: Written directions	#	++	++
4: Reference materials	++	++	++
5: Significant facts	++	++	++
6: Main ideas and organization	++	++	++
7: Drawing inferences	++	++	++
8: Critical reading	++	++	++
Objectives			
I: Comprehend what is read	++	++	++
II: Analyze what is read	++	++	++
III: Use what is read	++	++	++
IV: Reason logically from what is read	++	+	++
V: Make judgments concerning what is read	++	++	++
All exercises	++	++	++

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